

It was also decided to propose holding the meetings in alternate months throughout the year, namely in January, March, May, July, September and November, and that the Annual General Meeting should be held either in April or in May as convenient. Such proposals require alteration to the Rules, for which it is necessary to pass the Special Resolutions as stated above, and since it was the Committee's intention that such changes should come into force at the beginning of a calendar year, and with the start of a new volume of the *Bulletin*, the Committee has called this Special General Meeting for December. At the same time, it has taken the opportunity to make Rule 7 more explicit.

In the light of these proposals there will be no publication of the *Bulletin* in January 1969. On the other hand, owing to previous arrangements having been made, meetings will be held as usual at the Rembrandt Hotel in January, February, March and April. Thereafter, it is hoped that a new venue will have been decided upon, where the cost of the meal is more acceptable to Members. The Committee has two possibilities under consideration, one providing a buffet supper and the other a dinner, and it is possible that these will alternate throughout the year.

MARTIN W. WOODCOCK,
Hon. Secretary.

Examples of intersexuality in the Mallard and Teal

by JAMES HARRISON

Received 1st July, 1968

Introduction

Intersexuality in birds presents a state of anomalous secondary sexual characters and can be determined by a variety of causes. The condition has been known since the middle ages when the subjects were regarded as the result of witchcraft and were disposed of accordingly often by being burned at the stake!

I suppose the earliest scientific account of the condition was the result of the investigations of the eminent surgeon of his day, Dr. John Hunter, and the results find mention by Yarrell in his *History of British Birds* (1884, vol. III, pp. 102, 103).

From that date onwards the study of these cases of intersexuality became the target for an increasing volume of research, which included such measures as the surgical ablation of the gonads of both sexes as well as the implantations of gonad grafts, and by these means clarification of the problems involved became far better understood.

So voluminous is the literature covering these basic and early studies that it is not possible to do more than indicate their importance as a fundamental biological study.

The advances made have been substantial but even in our present times we cannot regard the research as finalised by any means. Hence it is that every case should in consequence be submitted to an expert investigation, which of course includes as an essential an anatomical and histological examination.

In the small passerines it is a state, except in those species which happen to have very strongly differentiated secondary sexual characters, which is likely to be missed, but of course in such birds as pheasants and duck, the change is at once apparent to all, and invariably attracts much interest. Usually, however, such birds may be preserved, usually as mounted specimens, but all other investigations have been omitted, while of course mostly other notes, such as behavioural details, etc. are not recorded. In the case of the "cocky-hen" or "mule" pheasant and in similar cases in the domestic fowl the fact that the individual makes no appeal to either sex, and is in fact shunned by normally constituted birds is on record.

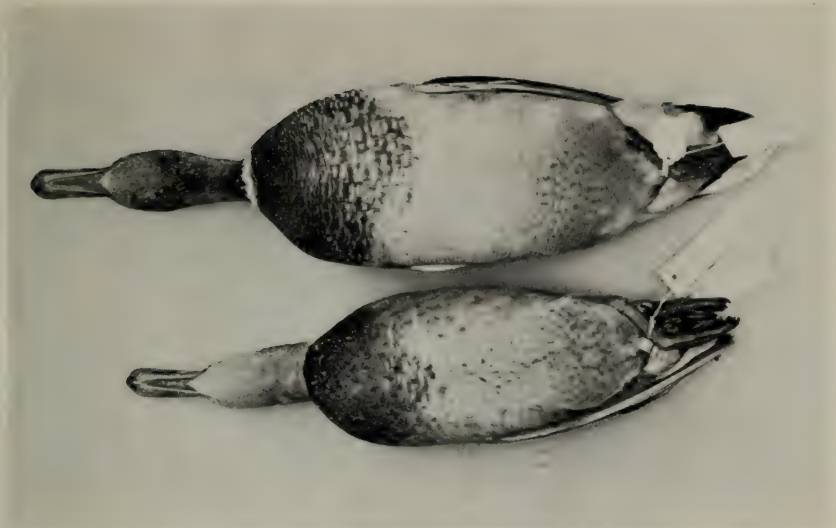


PLATE I

Bottom: Mallard intersex, 16th February, 1963, Middleburg, Holland.
Top: Mallard intersex, 18th November, 1967, Sevenoaks, Kent



PLATE II

Bottom: Mallard intersex, 16th February, 1963, Middleburg, Holland
Top: Mallard intersex, 18th November, 1967, Sevenoaks, Kent

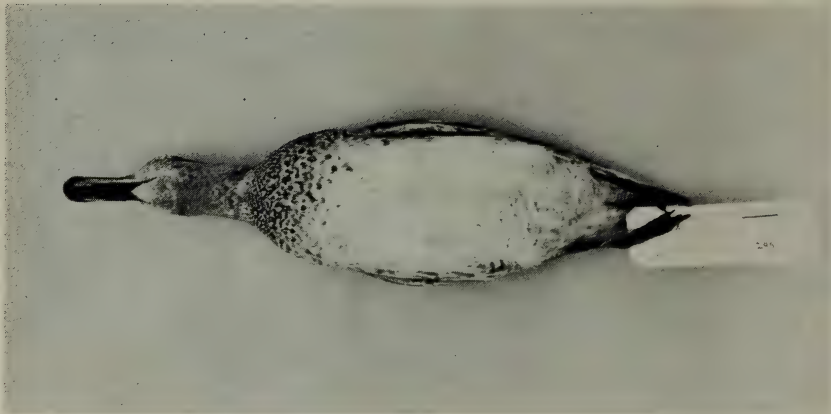


PLATE III

Teal intersex: 1st year, 18th January, 1957, le Sambuc, Camargue, France



Photographs by Dr. Pamela Harrison

PLATE IV

Teal intersex: 1st year, 18th January, 1957, le Sambuc, Camargue, France

This condition is surprisingly prevalent, and one can only think that in the game birds, domestic breeds of fowl and waterfowl the intersexual state may be favoured to some extent as a result of semi-domestication in which they live.

However, without doubt it can occur in the wild state, and indeed there are a number of such records. Another factor favouring intersexuality is that of hybridisation, and one can well understand how this could possibly occasion this condition in view of the gross genetic disturbances caused by the interspecific and, also occasionally, intergeneric hybridisation.

Possibly also inbreeding would favour intersexuality, and in this connection the Mallard is undoubtedly a species which is very much inbred, and one moreover in which there is a strong taint of domesticity. It is well known to be very liable to produce variants, albescents, melanistic and pied examples being extremely common. In any very cloistered community the individual variation can be most bizarre. As a species it is very widely distributed, so that the normal and natural phenotype stands at no risk of being swamped by the very numerous variants the species shows. That this is so is only due to the fact that many of the breeding areas of Mallard include locations which are at one and the same time remote geographically, and far removed from centres of civilisation, where contamination with impure stocks is only too common and is a factor favouring the continuance of the many varieties recorded.

These general observations provide the basic background in general to intersexuality in birds, and this is moreover rendered more likely by some peculiarities in avian physiology which will be discussed later when considering the various cases.

Material

This consists of two Mallard and a Teal, one of the former, for the loan of which I am indebted to Professor Voous and Dr. J. Wattel of the Department of Zoology, University of Amsterdam, to whom it was presented by Mr. T. Lebret of Middleburg (Pl. I and Pl. II).

Mr. Lebret has favoured me (*in litt.* 6. vi. 68) with very complete details of the history of this individual as follows:

"The bird originated from a deserted clutch in my pen, where I keep a pair of wild caught Mallard. The two eggs were due to hatch and on 13th August, 1961, the bird concerned which so far had been a normal juv. ♀ showed signs of male plumage. But only in the spring of 1962 she commenced to produce a white neck band and a pronounced contrast between a normal female neck plumage above the neck band and a "male" breast under it. Also "a drake tail curl" started to develop. The bird was wing-clipped but moulted already in May and escaped on 27th May. This was due to non-symmetrical moult of the primaries.

She and the ♂ of the same clutch regularly visited my pond during the summer and autumn of 1962. On 7th September, 1962, the intersex started to develop grey flanks. In autumn the visits of the birds were less regular.

During the severe winter the birds were about but I saw the ♂ on a feeding centre in the town moat once in January 1963.

Then on about 16th February, 1963, when coming home from the

office at approximately 17.30 hours, the intersex was *walking* on the snow-covered lane in the bungalow park in the direction of my garden. I herded her to protect her from dogs and cats. It seems she was too starved to fly to my pond. When I was giving her some rest before catching her to put her inside the pen, she was attacked by a dog and shied away, so that I could not catch her and next morning she had died."

This is a very complete account and a very valuable one, in that it gives us the precise age of this individual which can consequently be correlated with the histological findings.

In the second case (Pl. I and II) the story is as lacking in detail as the first was full, for the bird, a wild one, appeared on a gravel pit in the Sevenoaks district on 18th November, 1967 and was promptly collected for me by Jeffery Harrison, not as might be imagined on the water at leisure, but singled out from a party in flight. This is important as showing that the characteristics of these intersexes are recognisable in the field by the perceiving observer, but of course this is indeed the necessary initial step in the proper and full investigation of all such cases.

Teal

This specimen which was kindly loaned to me by Dr. Luc Hoffmann, is a first winter bird which was obtained on 18th January, 1957 (Pl. III and IV) in the Tour du Valat, le Sambuc, Camargue, France (Collection No. 295). The specimen is in transition plumage to its first winter dress and the head and neck have already developed a rather pale chestnut, while the post-ocular green area, so typical of the adult drake Teal is rather dull, and the crown is brownish and the feathers are tipped with sepia, giving it a striped appearance. The lores are pale and finely streaked while there are pale superciliary stripes. The breast is spotted as in the drake Teal, and the flanks are partly barred brownish, some of the feathers transversely, others longitudinally. The rather coarse vermiculated flanks of the first winter dress are also coming through.

The upperparts are an admixture of the juvenile dress, and of first winter feathering. There is no evidence of the assumption of the pale buffish-yellow flank feathers which embrace the root of the tail, and the under tail-coverts show a mixture of whitish dusky vermiculated type with a few blackish feathers; some of the outermost are very faintly tinged with palest buffy-yellow.

The bird is sexed as a "♀ (intersex)", but the taxidermist has added "weder Ovar noch Hoden gefunden!" So that the anomalous appearances the specimen presents are clearly confirmed anatomically.

One can safely assume I think that in this case there may possibly have been some tumescence visible in the sexing of the bird which in all probability lacked the typical appearances of an ovary and also that there was no other obvious gross anatomical condition to be seen to account for the changes observable in the secondary sexual characters.

Gross anatomical appearances of the Mallard

In both the Middleburg and Sevenoaks specimens of the Mallard the macroscopic anatomical appearances are broadly similar, and are adequately described as revealing a small tumescence in the situation of the

ovary in normal birds, in the case of the Sevenoaks specimen there was no evidence of the presence of a right-sided gonad; nor of any adrenal hyperplasia or of metastatic growths.

Upon enquiry from Dr. J. Wattel, to the best of his knowledge, these possible additional factors can also be ruled out. Indeed Dr. Wattel's first impressions were that what he personally saw in the specimen was in effect an embryonic ovary. In fact writing to me (1st September, 1967) he says "The gonads of this bird were fixed in Bouin and looked like an undeveloped ovary macroscopically." And it is, I think, most likely that this was also the determining cause of the intersexuality of the specimen of the Teal from the Camargue.

Histology

In certain cases the results are such that there is no questioning of the findings. That this was so in the case of the Middleburg specimen of the Mallard was certainly not the case.

Allowing of course for the fact that not very much attention has been paid to the study of avian histology, beyond the very basic facts that can be found in any elementary text book on zoology, let alone the age stages in the gonads of both sexes, so that some very fundamental and vital comparisons can be made indicates, I think, that this is a field of research in ornithology which can well be explored with some prospect of rewarding results.

The truth of this assertion was made very obvious by the sections of the ovary of the Middleburg bird, which *as an adult* presented some revealing features, for at this stage in the bird's life this organ should at least have presented some unequivocal histological appearances of its ovarian nature. Instead the tissues show closely packed cells most of them of cubical and columnar-celled types. In fact the various opinions ranged from an embryonic ovary (the correct diagnosis, originally suggested by Dr. Wattel, and confirmed later histologically by Dr. G. W. Storey, consulting pathologist, the National Temperance Hospital, London), to an arhenoblastoma or adrenal tissue!

Dr. Storey's considered opinion was sent me (*in litt.* 24th January, 1968) in the following terms: "Respecting the Dutch specimen, the "ovary" is somewhat autolysed but one can make out the structure which gives me the impression of being somewhat immature but no different from that of young birds. The "oviduct" seemed to have a highly proliferative mucosa and were it not for the type of lining epithelium I would have thought it similar to gut."

In the case of the Sevenoaks specimen he writes: "(the tissue) is very small and shows chiefly neural tissue and blood vessels with this curious small organ I thought at first to be ganglion tissue! I would really not have recognised this as ovary as it seems almost 'embryonal' in type. It may well be that it is very immature ovary but I could not be certain."

Summary and Discussion

This paper describes three intersexes, two in the Mallard and one in a Teal, one of the former was reared in captivity though it subsequently died in the wild. The other, as was the Teal, wildshot.

Histological examinations were carried out in the case of the two Mallard, the results in the two examined microscopically, and the other on macroscopic appearances suggesting ovarian agenesis.

The comments throughout this paper are intended to stimulate and advance our knowledge of what is a line of research of absorbing interest and of no little importance as a biological study.

Acknowledgments

The author's first indebtedness is to Professor Voous and Dr. J. Wattel of the Zoological Museum, University of Amsterdam for the loan of the Dutch specimen, to Dr. Jeffery Harrison for collecting the Sevenoaks specimen, while I am also most grateful to Dr. Luc Hoffmann, of the Station Biologique, the Tour du Valat, le Sambuc, Camargue, France, for the loan of the specimen of the Teal.

My grateful acknowledgments to Dr. G. W. Storey for the histological preparations and for his valuable opinions on these are self evident.

Finally for the photography of the three specimens my sincere thanks are due to Dr. Pamela Harrison.

Wanderings of the Blue-winged Pitta to Australia

by D. L. SERVENTY

Received 21st June, 1968

In November, 1927, Mr. N. E. Spry, the owner of Mandora Station, Wallal, between Port Hedland and Broome, Western Australia, picked up a dead pitta in the bush and sent it to the Western Australian Museum, Perth, where it was received on 1st February, 1928. Here it puzzled the Curator (Mr. L. Glauert) and local ornithologists, as this arid country offers no suitable habitat for such a species, particularly as it was identified as a Blue-winged Pitta (*Pitta moluccensis**), a Malayan species, hitherto unknown from Australia. On 2nd February, 1931, a second bird of the same species was received at the Museum from Mr. Ah Chee, of Derby, and would presumably have been found about the same time of the year as Mr. Spry's bird, namely about November, 1930. In a press statement, published in the *West Australian* newspaper of 25th February, 1931, Mr. Glauert could only account for the occurrences as being escaped cage-birds.

This has been the accepted view of Australian ornithologists since then (e.g. Whittell, 1943; Whittell and Serventy, 1948). Despite this, Mathews (1943) described the remains—the specimens were received in rather poor condition and had to be preserved as mummies—as a new Australian species, *Cervinipitta kimberleyensis*, but conceded that it might be a subspecies of *C. moluccensis*. On this authority Australia was admitted as being within the range of the Blue-winged Pitta by Delacour, 1947: 192.

In October, 1966, whilst returning from England, I was able to spend a few days with Dr. Ian Nisbet at Kuala Lumpur, Malaysia. Through the kindness of Dr. Nisbet and Lord Medway I accompanied bird-ringing teams at Fraser's Hill, some 70 miles distant from Kuala Lumpur. Fraser's

Hill is a resort in rain-forest at an altitude of 4,250 ft. The southward migration was well under way and mist-netting was carried on at an illuminated telecommunications tower. On misty nights large numbers of migrants are taken in the nets, ringed and released. Excellent conditions for these operations obtained on the nights of 22nd/23rd and 23rd/24th October. On the two evenings four individuals of the Blue-winged Pitta (*Pitta moluccensis*) were taken and, examining them, I was at once reminded of the Western Australian occurrences of almost 40 years previously.

Dr. Nisbet informed me of the wide migratory habits of the species in Malaysia. The species is a long distance migrant, and one which habitually gets into trouble whilst crossing the sea and then turns up in unexpected places. Thus it had been taken at lighthouses and even on ships on voyage. There are several references in the literature to its turning up at odd places. Robinson & Chasen (1939: 197) state that "in the autumn it arrives in great numbers from the north, and from October onwards it is very common as a bird of passage on the small islands in the Straits of Malacca". Madoc (1947: 126) states that "at lighthouses along our coasts (it is) a bird that is killed frequently on the lantern during autumn migration". Batchelor (1961) reports that his ship was invaded by a "large flock" of Blue-winged Pittas at 9 p.m. on 13th October, 1958, a few miles off Labuan, North Borneo. Jean Delacour informs me (*in litt.*, 4th September, 1967) that he found the Blue-winged Pitta to be a common migrant in southern Indo-China and the Straits of Malacca. On several occasions a number of individuals were caught by him on the ship during crossings in autumn and spring. He saw it several times in the gardens of Saigon in the winter. Smythies (1960) records *moluccensis* as a common winter visitor in Borneo. Gibson-Hill (1949: 146) summarises its status in Malaya as essentially a passage migrant.

In view of its migratory behaviour in Malaysia and neighbouring areas I now feel that the 1928 and 1930 records from northern Western Australia may be safely attributed to natural wanderings—an explanation already suggested by Dr. W. D. L. Ride, Director of the Western Australian Museum (in Serventy, 1958: 418).

Apparently the Malay Peninsula is the normal southern limit of the species' migratory range as it is not ordinarily found in Java (*cf.* Bartels and Stresemann, 1929), Timor (Mayr, 1944), or New Guinea (Rand and Gilliard, 1967).

The dimensions of 12 birds netted at Fraser's Hill, measured by Dr. Nisbet, and kindly provided by him, are as follows:

Wing, mean 126 mm. (ranging from 120–130 mm.); tail, 55 (47–60); tarsus, 41 (36–44); gape, 31 (30–33); weight, 76 gm. (63–82 gm.).

The lengths in the flesh of two specimens were 185 and 200 mm.

Colours of bare parts: iris, dark brown; bill, brownish-black, lighter on ridge and at base of lower mandible; legs, greyish-pink; inside of mouth, pink-flesh.

The two Western Australian specimens are now in such a dilapidated condition, due to the ravages of insects, that complete measurements are impossible. At the time of their receipt Mr. C. F. H. Jenkins made some measurements of the Derby specimen which are given below, with measurements made by myself later in brackets:

Total length, 210 mm.; tail, 50 mm. (53); tarsus, 41 mm. (41); exposed culmen, 27 mm. The tarsus in the Wallal specimen (the only dimension that can now be taken) is 43 mm. In both specimens the medial crown stripe is black. The Wallal bird had red under the vent, but this was lacking in the Derby bird. In general plumage colours (blue wings and buff-yellow underparts) they are very similar to the Fraser's Hill birds.

Nomenclaturally the form migrating through Malaya and believed to be visiting Australia has had varied treatment in the literature. When originally identified at the W.A. Museum by Glauert and Jenkins the Australian specimens were referred to as *Pitta megarhyncha*. Mathews suggested they were close to *Pitta moluccensis*. Delacour (1947) placed all the Blue-winged Pittas in the species *Pitta brachyura*, with the breeding residents of Malaya, Sumatra and Banka as the race *P. b. megarhyncha*, and the westerly migrants as *P. b. moluccensis*. A second migrant race, *P. b. nympha*, visits Borneo from north-eastern Asia and Japan. To this wide concept of *brachyura* Vaurie (1959: 1) adds the Australian *versicolor* as a subspecies.

Through the kindness of Professor Ernst Mayr, I have been able to peruse the draft of the treatment of these pittas in Peters' *Check-List of Birds of the World*, in which the bird under discussion is separated out as a full species—*Pitta moluccensis*. The distribution of the nominate race, *P. b. moluccensis* (in which Mathews' *kimberleyensis* is placed as a synonym) is given as: "Burma, from Arakan and Pegu south through Tenasserim, Peninsular Siam (Bandon, Trana). On migration and in winter to Malay Peninsula, Sumatra, Rhio Archipelago Banjak Islands, Nias, Mentawi Islands, Java, North Natuna Islands; Borneo." The Australian *P. versicolor* is retained as a separate species.

Pitta moluccensis moluccensis may now be added without reserve to the Australian list as an occasional migrant to the western part of northern Australia.

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* Actually the name used in the original identification was *megarhyncha*; the nomenclatural situation is briefly discussed at the end of this article.